Exhibit 28

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WHAT ARE NETWORK EFFECTS?

12 NOV 2020

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Economics for Managers, Strategy

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When pricing your products, services, or platform, you should consider several factors to ensure you're doing so effectively. You need to understand the unique value your product offers, your customers' willingness to pay for that value, and the profit margins your company requires to reach its goals.

It's also important to consider whether your product or service is subject to any network effects, which could impact your pricing strategy.

Not familiar with the concept of network effects? Below is an overview of what network effects are, how they can impact your business strategy, and what skills you need to properly leverage them to increase your profitability.

WHAT ARE NETWORK EFFECTS?

According to the online course Economics for Managers, the term **network effect** refers to any situation in which the value of a product, service, or platform depends on the number of buyers, sellers, or users who leverage it. Typically, the greater the number of buyers, sellers, or users, the greater the network effect—and the greater the value created by the offering.

"In other words, the willingness to pay, for a buyer, increases as the number of buyers or sellers for the business grows," says Harvard Business School Professor Bharat Anand in the course.

EXAMPLES OF NETWORK EFFECTS

Many of today's most popular companies and startups are heavily influenced by network effects, such as:

- **E-Commerce:** eBay, Etsy, Amazon, Alibaba
- **Ticket Exchange:** StubHub, Ticketmaster, SeatGeek
- **Rideshare:** Uber, Lyft
- **Delivery:** Grubhub, DoorDash, Uber Eats, Instacart, Postmates
- **Social Media:** Facebook, Twitter, Instagram, LinkedIn, Snapchat, Pinterest

What each of these companies has in common is that the value they provide to customers increases as they scale and acquire more users. Etsy and eBay offer vastly more value to users if one million, instead of 100, sellers use their platforms. Uber and Lyft provide greater convenience and reliability to riders when more drivers join their platforms. When it comes to social media sites, users find the channels more interesting and varied as more people sign up.

DIRECT AND INDIRECT NETWORK EFFECTS

Not all network effects are the same. They're often broken into two different types: direct and indirect.

Direct network effects occur when the value of a product, service, or platform increases simply because the number of users increases, causing the network itself to grow.

Social media platforms primarily benefit from direct network effects because the service's value grows as a direct result of attracting more users.

Apple also benefits from direct network effects. The preferential treatment of messages sent from an iPhone to another Apple device (through iMessage) has helped the company expand its moat in the market.

Indirect network effects, on the other hand, occur when a platform or service depends on two or more user groups, such as producers and consumers, buyers and sellers, or users and developers. As more people from one group join the platform, the other group receives a greater value amount. This is best illustrated by the e-commerce and ridesharing examples noted above.

WHY ARE NETWORK EFFECTS IMPORTANT TO UNDERSTAND?

According to Economics for Managers, the underlying principles of network effects imply that the business, website, or platform with the highest market share will be more successful in the long run. This means that its market share is likely to grow more substantially. For this reason, markets in which network effects play a major role are often referred to as **winner-takes-all markets**.

"Companies that can leverage or exploit network effects often experience rapid rates of growth," Anand says. "Not just that: Once you're ahead, you tend to stay ahead. Your demand keeps growing even faster as you get bigger."

For a real-world example of this concept, look no further than eBay. When the company "wins" in a particular country, it tends to win big due to its prominence over the competition.

NETWORK EFFECTS AND PRICING

Before pricing your product, service, or platform, it's crucial to understand whether your market is subject to network effects. Why? Because the underlying logic that guides a typical pricing strategy reverses itself in markets where network effects are felt strongest.

To maximize profit margin, businesses typically price their products as high as possible without exceeding their customers' willingness to pay. But when a market is subject to network effects, the driving concern isn't so much profit as it is market share—especially early on.

This is because future customers' willingness to pay depends on the number of existing users. By growing your market share early, you increase your ability to raise prices at a later date, once you've taken advantage of network effects and driven adoption of your offering as much as possible. For this reason, many companies price their products low early on or give them away for free.

The emergence of Facebook as a social media giant is an excellent example of this premise in practice. When Facebook launched in 2004, it was a free social media platform. By virtue of being free, the platform became more popular, capturing greater market share and eventually displacing Myspace, its primary competitor at the time. It wasn't until 2007 that Facebook introduced ads in an effort to monetize its user base, and it wasn't until 2013 that the company noticeably ramped up those efforts.

USING NETWORK EFFECTS TO YOUR ADVANTAGE

By understanding the principles that drive network effects and the impact they can have, you can leverage them to increase profitability and grow your business.

"Once you've gained significant market share, you can often sit back and let the network effect take over," Anand says in Economics for Managers. "Your existing buyers and sellers are, in effect, your sales force in attracting more buyers. You often have to do very little. This is also why, in markets with network effects, you see companies competing fiercely early on to get customers—even giving away the product for free—but then raising prices afterward once they have network leadership."

Are you interested in further exploring network effects, willingness to pay, and other frameworks that can guide your pricing strategy? Explore our eight-week course Economics for Managers and other online strategy courses, and learn more about how to develop effective pricing strategies.

About the Author

Tim Stobierski is a marketing specialist and contributing writer for Harvard Business School Online.